

Service Quality Measurements

Measurement Detail

Performance Standard in Absence of ILEC Results:	<p>If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete:</p> <ul style="list-style-type: none">• More than 90% of call involving answer by a “live” agent, separately for OS and DA services, are answered within 10 seconds.• All calls involving answer by a Voice Response Unit, separately for OS and DA services, are answered within 2 seconds.
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Service Quality Measurements

Measurement Detail

Network Performance (NP)

Function:	Network Performance Parity	
Business Implications:	The perceived quality of CLEC retail services, particularly when either ILEC services are resold or UNE combinations are employed, will be heavily influenced by the underlying quality of the ILEC network performance. Customers experience the quality of the service provider each time services are used. This metric monitors, when collect for both the CLEC and ILEC and then compared will help show whether CLEC network performance is at least at parity with ILEC network performance.	
Measurement Methodology:	<p>Network Performance Parity = $\Sigma(\text{Network Performance Parameter Result})/(\text{Number of Tests Conducted})$</p> <p>For CLEC Results: Based upon a random and statistically reliable (at a preset level) sample of network configurations employed by the CLEC, the network performance parameter (as indicated in the reporting dimension) is monitored based upon generally accepted testing procedures and the resulting parameter value(s) recorded. The measured values are accumulated across the sample base and the mean and associated variance computed</p> <p>For ILEC Results: The approach is identical to that described for the CLEC, except that the network performance is measured only for representative ILEC service configurations.</p> <p>Other Clarifications and Qualification:</p>	
Reporting Dimensions:	<ul style="list-style-type: none"> • Transmission Quality (See Appendix A) • Speed of Connection (See Appendix A) • Reliability (See Appendix A) 	Excluded Situations:
		<ul style="list-style-type: none"> • None
Data Retained Relating To CLEC Experience:	<ul style="list-style-type: none"> • Report Month • Reporting Dimension • Mean Performance Result • Standard Error of Mean Performance • Number of Data Points • Geographic scope 	Data Retained Relating To ILEC Performance:
		<ul style="list-style-type: none"> • Report Month • Reporting Dimension • Mean Performance Result • Standard Error of Mean Performance • Number of Data Points • Geographic scope
Performance Standard in Absence of ILEC Results:	<p>If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete:</p> <ul style="list-style-type: none"> • Performance Standards in this area are yet to be published. 	

Service Quality Measurements

Measurement Detail

Interconnection/Unbundled Elements and Combinations (IUE)

Function:	Availability of Network Elements
Business Implications:	As CLECs use individual elements as well as element combinations to deliver unique services, it is essential that the UNE functionality operate properly due to the crucial role played by such elements in providing quality retail services. This measure monitors individual network element or element combinations, that do not have an apparent retail analog, to assure that CLECs have a meaningful opportunity to compete through access to and use of element (or combination) functionality.
Measurement Methodology:	<p>Function Availability¹ = (Amount of Time² a Functionality is Useable¹ by a CLEC in a Specified Period)/(Total Time² Functionality Was Intended to Be Useable)</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. These measure may also be expressed in the negative, that is, in term of unavailability. 2. In some instances, rather than time, the availability will be express in terms of transactions executed successfully compared to transactions attempted. <p>For CLEC Results: Availability will be measured for each unique UNE functionality (or combination of UNEs) that deliver a unique functionality that does not have a reasonable retail service analog. The number of times that the functionality executes properly will be shown in comparison to the number of times that the execution of the functionality was requested or initiated. Availability can apply to both physical and logical (e.g., database) elements. Physical element availability (e.g., links to databases, dedicated transport, etc.) will typically be expressed as the % of time that the functionality is useable compared to the total time in the period being observed. "Useable" will typically means that, when monitored, the element indicates readiness to operate (e.g., an electrical (or equivalent) continuity is detected, expected signaling is returned, etc.). Logical element availability will typically be expressed in terms of the number of transactions successfully executed (e.g., successful database updates, success query responses) compared to the number of transactions attempted.</p> <p>Illustrative examples of availability measures are shown below</p> <ul style="list-style-type: none"> • A-link: minutes unavailable per year • D-link: seconds unavailable per year • databases: percentage of queries receiving a response • databases: percentage of transactions experiencing time-outs • databases: percentage of queries experiencing a return of unexpected values • routing: percentage of calls blocked <p>For ILEC Results: Identical measurements are performed where the ILEC employs the same or reasonably comparable functionality. Where such analogs do not exist, the ILEC is expected to establish benchmark performance levels jointly with the CLEC requesting the functionality.</p> <p>Other Clarifications and Qualification:</p>

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	<ul style="list-style-type: none"> • The preceding list of elements is illustrative and is not to be considered exhaustive • ILEC failure to provide timeliness performance that is no worse than what its own operations experience when using comparable functionality or, where comparable functionality is not employed, failure to meet or exceed parameters established as result of negotiation with the CLEC, constitutes failure to deliver nondiscriminatory access. • For each element or element combination requested, where a retail analog is not identified, the ILEC is expected to establish both a availability measure and an availability standard (ILEC functional analog or negotiated) unless the CLEC waives its right for such a measure. • Typical databases for which standards are currently expected are AIN, LIDB and 800 Number.
Reporting Dimensions:	Excluded Situations:
<ul style="list-style-type: none"> • By unique UNE or UNE combinations requested by the CLECs 	<ul style="list-style-type: none"> • None
Data Retained Relating To CLEC Experience:	Data Retained Relating To ILEC Performance:
<ul style="list-style-type: none"> • Month • Element or Element Combination Identification • Result for Agreed Upon Availability Parameter 	<ul style="list-style-type: none"> • To Be Determined
Performance Standard in Absence of ILEC Results:	<p>If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete:</p> <ul style="list-style-type: none"> • Performance Standards in this area are yet to be published.

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Function:	Performance of Network Elements
Business Implications:	As CLECs use individual elements (as well as element combinations) to deliver unique services, it is essential that the UNE functionality operates in a timely manner because of the crucial role played by such elements in providing quality retail services. This measure monitors individual network element (or element combinations), that do not have an apparent retail analog, to assure that CLECs are afforded a meaningful opportunity to compete when element (or combination) functionality is utilized.
Measurement Methodology:	<p>Timeliness of Element Performance = (Number of Times Functionality Executes Successfully Within the Established Timeliness Standard)/(Number of Times Execution of Functionality was Attempted)</p> <p>For CLEC Results: Timeliness will be measured for each unique UNE (or combination of UNEs) that delivers unique. The number of times that the functionality executes properly within the established standard time frame will be accumulated and shown in comparison to the number of times that the execution of the functionality was requested or initiated.</p> <p>Illustrative examples of timeliness measures are shown below:</p> <ul style="list-style-type: none"> • Database Updates: % completed within 24 hours • Post Dial Delay: % calls routed to CLEC OS platform within 2 seconds <p>For ILEC Results: Identical measurements are performed where the ILEC employs the same or reasonably comparable functionality. Where such analogs do not exist, the ILEC is expected to establish benchmark performance levels jointly with the CLEC requesting the functionality.</p> <p>Other Clarifications and Qualification:</p> <ul style="list-style-type: none"> • The preceding list of elements is illustrative and is not to be considered exhaustive • ILEC failure to provide timeliness performance that is no worse than what its own operations experience when using comparable functionality or, where comparable functionality is not employed, failure to meet or exceed parameters established as result of negotiation with the CLEC, constitutes failure to deliver nondiscriminatory access. • For each element (or element combination) requested where a retail analog is not identified, the ILEC is expected to establish both a timeliness measure and a timeliness standard (ILEC functional analog or negotiated) jointly with the requesting CLEC unless that CLEC waives its right for such a measure. • Typical databases for which standards are currently expected are AIN, LIDB and 800 Number. • Comparisons of performance should be based upon the criteria for which the element was engineered. For example, if the element was engineered based upon average busy hour criteria, the comparison should be based upon the CLEC busy hour period (likewise for criteria such as busy day, busy season, or ten high days).

Service Quality Measurements Measurement Detail

Reporting Dimensions:		Excluded Situations:	
<ul style="list-style-type: none"> By unique UNE or UNE combinations requested by the CLECs 		<ul style="list-style-type: none"> None 	
Data Retained Relating To CLEC Experience:		Data Retained Relating to ILEC Performance:	
<ul style="list-style-type: none"> Month Element or Element Combination Identification Result for Agreed Upon Availability Parameter 		<ul style="list-style-type: none"> To Be Determined 	
Performance Standard in Absence of ILEC Results:		<p>If the ILEC does not deliver direct comparative results or the ILEC has not produced benchmark levels based upon a verifiable study of its own operation as agreed to with the CLEC, then result(s) related to the CLEC operation should be provided according to the following levels of performance in order to provide the CLEC with a meaningful opportunity to compete:</p> <ul style="list-style-type: none"> Performance Standards in this area are yet to be published. 	

Service Quality Measurements

Measurements Detail

Appendix A: Reporting Dimensions

Standard Service Groupings:	<ul style="list-style-type: none"> • Resold Residence POTS • Resold Business POTS • Resold Residence ISDN • Resold Business ISDN • Resold Centrex/Centrex-like • Resold PBX trunks • Resold Channelized T1.5 service • Other Resold Services • UNE Platform (at least DS0 loop + local switch + transport elements) • UNE Channelized DS1 (DS1 loop + multiplexing) • Unbundled DS0 Loop • Unbundled DS1 Loop • Other Unbundled Loops • Unbundled Switch • Other UNEs
Standard Order Activities:	<ul style="list-style-type: none"> • New Service Installations • Service Migrations Without Changes • Service Migrations With Changes • Local Number Porting • Move and Changes Activities • Feature Changes • Service Disconnects
Pre-Ordering Query Types:	<ul style="list-style-type: none"> • Due Date Reservation • Feature Function Availability • Facility Availability • Street Address Validation • Service Availability Information • Appointment Scheduling • Customer Service Records • Telephone Number • Rejected of Failed Queries (regardless of type)
Transmission Quality Parameter:	<ul style="list-style-type: none"> • Subscriber Loop Loss • Signal to Noise Ratio • Idle Channel Circuit Noise • Loop-Circuit Balance • Circuit Notched Noise • Attenuation Distortion

Service Quality Measurements

Measurements Detail

Appendix A: Reporting Dimensions

Speed of Connection Parameters:	<ul style="list-style-type: none"> • Dial Tone Delay • Post Dial Delay • Call Completion/Delivery Rate
Reliability Parameters:	<ul style="list-style-type: none"> • Network Incident Affecting >5000 Blocked Calls • Network Incidents Affecting >100,000 Blocked Calls
Disposition and Cause:	<ul style="list-style-type: none"> • Out of Service No Dispatch • Out of Service With Dispatch • Hold Open for Monitoring • Customer Premise Equipment Trouble (including Inside Wire) • No Trouble Found • Central Office Equipment • Interoffice Facilities • Loop/Access Line • All Other Troubles • No access <p><i>"Out of Service" means that the customer has no dial tone.</i></p> <p><i>"Dispatch" means that ILEC repair personnel must be dispatched to a location outside an ILEC building (to customer premises or other off-site facilities) to resolve the trouble.</i></p>

Service Quality Measurements

Measurements Detail

Appendix B: Glossary

A

Abandoned Call:	An abandoned call occurs when the caller hangs up after the call has been delivered, but before the receiving party has answered the call.
Attenuation Distortion:	Attenuation Distortion” should measure the variation in loss at different frequencies across the voice frequency spectrum (200Hz - 3400 Hz).

B

Call Completion Rate	The call completion rate for CLEC customers is determined by calculating the total number of calls placed by CLEC customers that were completed to the calling destination. The number of completed calls is then divided by the total # of call attempts made by CLEC customers during the reporting period.
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Call Delivery Rate	The <u>call delivery rate</u> for CLEC customers is determined by calculating the total # of calls received by CLEC customers. This number of delivered calls is then divided by the total # of call attempts received by the ILEC for termination CLEC customers.
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Completion:	A “completion” is the transaction that the ILEC sends to the CLEC to inform the CLEC that a requested order has been completed.
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D

Data Response:

Dial Tone Delay:	The “Dial tone delay” is determined for each trial completed during the reporting period by computing the time that transpires from a customer’s going off-hook and the receipt of dial tone from the servicing central office. It should be measured in seconds and tenths of seconds. “Post dial delay” for each trial is determined for each trial completed during the reporting period by computing the time that transpires from when the last digit is dialed until a valid response is received by the customer. It should be measured in seconds and tenths of seconds
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E

F

FOC	A “FOC” is a Firm Order Confirmation notification, which is the transaction that the ILEC will send to the CLEC to confirm that an order can be completed.
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Service Quality Measurements

Measurements Detail

Appendix B: Glossary

G

H

Held Orders: “Held orders” are orders that the ILEC has confirmed (an FOC was returned to the CLEC) and that are overdue.

I

Idle Channel Circuit Noise The idle channel circuit noise for each trial is determined for each trial completed during the reporting month by computing the difference between the noise that exists in the channel when no signals are present and the reference noise. The resulting accumulated idle channel circuit noise for all trials is divided by the total # of trials completed during the reporting period.

Interface: The “interface” is the ILEC interface that allows the CLEC to access the ILEC system

**Internal or
Administrative Use:**

J

Jeopardy A “jeopardy” is a transaction that the ILEC sends to the CLEC to inform the CLEC that a previously FOC’d order cannot be processed as specified in the original FOC.

K

Loop-circuit Balance “Loops-circuit balance” should be measured in decibels and tenths of decibels above the reference noise. “Attenuation Distortion” should measure the variation in loss at different frequencies across the voice frequency spectrum (200Hz - 3400 Hz). It should be measured from the NID to the switch, and from the switch to the NID. It is measured by subtracting the loss at 1004 Hz from the loss at the frequency of interest, and should be reflected in tenths of decibels.

M

N

Network Incident: A “Network incident” is an unplanned network occurrence that results in blocked calls

O

Service Quality Measurements

Measurements Detail

Appendix B: Glossary

P

Post Dial Delay: “Post dial delay” is the time that transpires from when the last digit is dialed until a valid response is received by the customer

Q

R

Receipt of Order:

Return of Valid Completion:

S

Signal to Noise Ratio: Signal to Noise ratio is the ratio of usable signal being transmitted to the noise or undesired signal.

Subscriber Loop Loss: The subscriber loop loss is by computing the difference between the strength of the signal as it enters the loop and the strength of the transmitted signal. Signal strength is measured in decibels rounded to the nearest tenth of a decibel. The resulting accumulated decimal strength is divided by the total number of trials completed during the reporting period.

Subsequent Reports: Customer trouble reports where the customer calls to check on the status of a previous trouble report (initial or repeat) that has not been cleared (closed or resolved) at the time of the call.

Syntax Reject: A “syntax reject” is the transaction that an ILEC will return to a CLEC when a the CLEC has submitted an order transaction that the ILEC’s gateway cannot process due to violation of published rules for formatting or content.

System: The “system” is the combination of ILEC gateways, communications links, hardware and software that, in combination, is used to perform or support business functions or execute supporting transactions.

T

Service Quality Measurements

Measurements Detail

Appendix B: Glossary

Troubles	“Troubles” include all reported difficulties with performance of resold services or UNEs, whether the report is the initial or a repeated report, that the CLEC refers to the ILEC repair process/interface for resolution. Subsequent reports are categorized separately.
Trouble Appointment:	A “trouble appointment” is a commitment made by the ILEC (to CLEC or to customer) to resolve a trouble.
U	
V	
W	
X	
Y	
Z	

**MCI's Additional Performance Measurement
Requirements**
*Including Measurements & Standards, Reporting Requirements,
and Standard Order Activities*

September 29th, 1997

Version 1.1

MCI's Additional Performance Measurement Requirements

Including Measurements & Standards, Reporting Requirements, and Standard Order Activities

Additional Reporting Requirements:

The ILEC shall provide MCI with reporting on it's ability to meet the Performance Standards set forth in the Measurements Detail section of the LCUG Service Quality Measurements (SQMs) document. For comparative purposes, this performance must be reported for: (i) The ILEC and its retail customers; (ii) The ILEC's Affiliates; (iii) All CLECs; and (iv) MCI. In addition, the ILEC must disaggregate such reporting into specific dimensions of service and time. The reporting dimensions outlined in the LCUG SQMs document are: standard service groupings, standard order activities, pre-ordering query types, transmission quality parameters, speed of connection parameters, and disposition and cause. In addition to the dimensions outlined in the LCUG SQMs document, the dimension Time should be reported to adequately capture a true parity curve. This Time reporting dimension should be represented in tenths of seconds, seconds, minutes, hours or days depending on the measurement.

An example of disaggregated reporting across service and time dimension would be: % of 1-4 lines installed in the 1st day, 2nd day, 3rd day, and > 10 days, etc.

Additional Measurements:

In addition to the measurements set forth in the LCUG Service Quality Measurements document, MCI must measure the following experiences to ensure that the end user experience is adequately measured. These measurements will serve to further ensure that local telephone service experiences are not negatively impacted simply by a customer choosing MCI as their local service provider. The tables below outline, by function, the necessary additional measurements and include a list of performance standards and formulas that are not a part of the LCUG SQMs document.

Ordering and Provisioning Function:	
Orders Not Completed Within Specified Intervals	
Measurement Objective:	
Measures the percentage and mean completion interval of orders completed and not completed within specified intervals.	
Standard Order Activities (Updated List Including Number Porting and Suspend, Block Restore):	
<ul style="list-style-type: none"> • New Service Installations • Service Migrations Without Changes • Service Migrations With Changes • Local Number Porting • Move and Changes Activities • Feature Changes • Service Disconnects • Line Suspend, Block and Restore 	
Performance Standards in Absence Of ILEC Results (Not Included In the LCUG SQMs Document):	Reporting Dimensions:
Number Porting: <ul style="list-style-type: none"> • Automated cut over time within 2 hours • Coordinated cut over time within 30 minutes Suspend, Block, Restore: <ul style="list-style-type: none"> • All orders completed within 5 business hours of receipt 	<ul style="list-style-type: none"> • Standard Service Groupings • Standard Order Activities • Geographic Scope
Measurement Formulas (Not Included In the LCUG SQMs Document):	
<ul style="list-style-type: none"> • Mean Completion Interval • $\frac{\text{\# of Orders Not Completed on Time}}{\text{Total \# of Orders Completed}} \times 100$ 	

MCI's Additional Performance Measurement Requirements

*Including Measurements & Standards, Reporting Requirements,
and Standard Order Activities*

Ordering and Provisioning Function:	
Orders Completed Within Specified Intervals	
Measurement Objective:	
Measures the percentage and mean completion interval of orders completed and not completed within specified intervals.	
Standard Order Activities (To Be Included In Existing LCUG List):	Reporting Dimensions:
<ul style="list-style-type: none"> • Local Number Porting • Line Suspend, Block and Restore 	<ul style="list-style-type: none"> • Standard Service Groupings • Standard Order Activities • Geographic Scope
Performance Standards in Absence Of ILEC Results (Not Included In the LCUG SQMs Document):	
Number Porting: <ul style="list-style-type: none"> • Automated cut over time within 2 hours • Coordinated cut over time within 30 minutes Suspend, Block, Restore: <ul style="list-style-type: none"> • All orders completed within 5 business hours of receipt 	
Measurement Formulas (Not Included In the LCUG SQMs Document):	
<ul style="list-style-type: none"> • $\frac{\text{\# of Orders Completed on Time}}{\text{Total \# of Orders Completed}} \times 100$ • Mean Completion Interval 	

Ordering and Provisioning Function:	
Percent Flow Through Orders	
Measurement Objective:	
Measures the percent of total orders processed directly to legacy provisioning system without manual intervention.	
Standard Order Activities (Updated List):	Reporting Dimensions:
<ul style="list-style-type: none"> • New Service Installations • Service Migrations Without Changes • Service Migrations With Changes • Local Number Porting • Move and Changes Activities • Feature Changes • Service Disconnects • Line Suspend, Block and Restore 	<ul style="list-style-type: none"> • Standard Service Groupings • Standard Order Activities • Geographic Scope
Performance Standards in Absence Of ILEC Results (Not Included In the LCUG SQMs Document):	
Performance standard to be negotiated	
Measurement Formulas (Not Included In the LCUG SQMs Document):	
<ul style="list-style-type: none"> • $\frac{\text{\# Orders Processed Through Legacy}}{\text{Total Number Of Orders Sent}} \times 100$ 	

MCI's Additional Performance Measurement Requirements

*Including Measurements & Standards, Reporting Requirements,
and Standard Order Activities*

Ordering and Provisioning Function:	
Average Offered Interval	
Measurement Objective:	
Measures the average time from ILEC's receipt of an accepted service request to due date provided on order confirmation. Excludes orders where customer requested Due Date is beyond offered interval.	
Standard Order Activities (Updated List Including Number Porting and Suspend, Block Restore):	Reporting Dimensions:
<ul style="list-style-type: none"> • New Service Installations • Service Migrations Without Changes • Service Migrations With Changes • Local Number Porting • Move and Changes Activities • Feature Changes • Service Disconnects • Line Suspend, Block and Restore 	<ul style="list-style-type: none"> • Standard Service Groupings • Standard Order Activities • Geographic Scope
Performance Standards in Absence Of ILEC Results (Not Included In the LCUG SQMs Document):	
Performance standard to be negotiated	
Measurement Formulas (Not Included In the LCUG SQMs Document):	
Average Offered Interval	

Maintenance and Repair Function:	
Number And Percent Of Maintenance Failures	
Measurement Objective:	
Measures the total number of failures as the total number of trouble reports where the trouble was closed out with a code indicating that the fault was an ILEC service problem.	
Disposition and Cause (Existing LCUG List):	Reporting Dimensions:
<ul style="list-style-type: none"> • Out of Service No Dispatch • Out of Service With Dispatch • Hold Open for Monitoring • Customer Premise Equipment Trouble (including inside Wire) • No Trouble Found • Central Office Equipment • Interoffice Facilities • Loop/Access Line • All Other Troubles • No Access 	<ul style="list-style-type: none"> • Standard Service Groupings • Disposition and Cause • Geographic Scope
Performance Standards:	
Performance standard to be negotiated	
Calculations:	
<ul style="list-style-type: none"> • $\frac{\text{\# Of Maintenance Failures}}{\text{\# Of Trouble Reports}} \times 100$ 	

MCI's Additional Performance Measurement Requirements

*Including Measurements & Standards, Reporting Requirements,
and Standard Order Activities*

Note: # of Maintenance Failures = Central Office Equipment + Interoffice Facilities + Loop/Access Line